

## Remarks

Claims 1-31 are now pending in this application. Applicants have amended claims 1, 12, and 13 and added new claims 29-31 to clarify the claimed invention. Applicants respectfully request favorable reconsideration of this application.

The Examiner rejects claims 14-28 under 35 U.S.C. § 102(e) as being anticipated by U.S. patent publication 2002/0070428 to Bernhoff et al.

Bernhoff et al. does not disclose the invention recited in claims 1-31 since, among other things, Bernhoff et al. does not disclose a field grading material for grading an electric field in high voltage applications including a polymeric matrix including a filler including a resistive and/or capacitive field grading effective amount of particles having at least one dimension smaller than or equal to 100 nm, where the particles are dispersed in the polymeric matrix, and wherein the field grading material comprises less than 40% by volume of the filler particles.

The Examiner cites paragraphs 0037 and 0038 of Bernhoff et al. as disclosing the claimed invention. However, these paragraphs relate to different embodiments and are not combinable. Along these lines, paragraph 0037 relates to an embodiment shown in Fig. 4 of Bernhoff et al. that includes a field grading material that includes a gel, composite, varnish, polymer or rubber based material. On the other hand, paragraph 0038 relates to an embodiment that includes a field grading material that is water. The two types of field grading materials are quite different.

Additionally, Bernhoff et al. does not disclose the size of the particles in the embodiment disclosed in paragraph 0037. Bernhoff et al. only discloses the particle size for the embodiment disclosed in paragraph 0038, which includes the water field grading material. Bernhoff et al. does not disclose nano-size particles in an embodiment that includes a polymeric field grading material.

Furthermore, Bernhoff et al. only discloses adding nano-size particles to the water field grading material to affect the dielectric constant or dielectric strength of the water, not the materials disclosed in paragraph 0037. In fact, Bernhoff et al. goes on to describe how the particles may be chosen "with a tendency to absorb ions for taking care of the risk of ionisation of pure water." Clearly, the nano-size particles are only described in connection with water as a field grading material and the discussion does not relate to the embodiment described in paragraph 0037. Bernhoff et al. does not disclose how such particles would affect the embodiment disclosed in paragraph 0037.

Also, Bernhoff et al. does not disclose why the particles should be added to water are nano-size or that the particles should be added in a field grading effective amount. In fact, given the size of the particles and the fact that they are being added to water, it would be reasonable to assume that nano-sized particles are added for avoiding particle sedimentation. If the micrometer-sized particles would be added for affecting the dielectric constant or dielectric strength of the water, they would rapidly sediment. While the nano-size particles are on the order of the size of particles in a colloid, such as milk, the micrometer-sized particles will behave

more like sand in water.

The Examiner cites claim 17 of Bernhoff et al. as supporting the contention that Bernhoff et al. discloses a field grading material that includes a polymeric material and nano-size particles. However, claim 17 only relates the embodiment disclosed in paragraph 0037, not the embodiment disclosed in paragraph 0038. On the other hand, claim 26, recites a nano-size particles. Claim 26 does not depend upon claim 17. This provides further support for the fact that Bernhoff et al. only discloses nano-size particles for a water field grading material.

In contrast to Bernhoff et al., the claimed invention includes an amount and size of particles in the filler that results in better mechanical properties of the field grading material. Bernhoff et al. does not suggest such results since Bernhoff et al. only suggests adding nano-size particles to water, which obviously will not be to affect mechanical properties of the water. Also, the amount and size of particles in percolation at a lower filler concentration in the field grading material as compared to a corresponding material comprising filler consisting of particles of larger size.

As discussed at page 7, first paragraph, the claimed invention achieves percolation at a lower filler concentration of the field grading material in a polymeric matrix. Additionally, Fig. 2 illustrates how the claimed invention provides superior electrical resistivity at lower filler concentration as a percentage of volume. Furthermore, an advantage of the claimed invention is that the lower the concentration of filler in the matrix, the better the mechanical properties of the field grading material. Bernhoff et al. does not disclose the composition or advantages of the

claimed invention.

In view of the above, Bernhoff et al. does not disclose all elements of the invention recited in claims 1-31. Since Bernhoff et al. does not disclose all elements of the invention recited in claims 1-31, the invention recited in claims 1-31 is not properly rejected under 35 U.S.C. § 102(b). For an anticipation rejection under 35 U.S.C. § 102(b) no difference may exist between the claimed invention and the reference disclosure. *See Scripps Clinic and Research Foundation v. Genentech, Inc.*, 18 U.S.P.Q. 841 (C.A.F.C. 1984).

Along these lines, anticipation requires the disclosure, in a cited reference, of each and every recitation, as set forth in the claims. *See Hodosh v. Block Drug Co.*, 229 U.S.P.Q. 182 (Fed. Cir. 1986); *Titanium Metals Corp. v. Banner*, 227 U.S.P.Q. 773 (Fed. Cir. 1985); *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 1 U.S.P.Q.2d 1081 (Fed. Cir. 1986); and *Akzo N.V. v. U.S. International Trade Commissioner*, 1 U.S.P.Q.2d 1081 (Fed. Cir. 1986).

In view of the above, the reference relied upon in the office action does not disclose patentable features of the claimed invention. Therefore, the reference relied upon in the office action does not anticipate the claimed invention. Accordingly, Applicants submit that the claimed invention is patentable over the cited reference and respectfully request withdrawal of the rejection based on the cited reference.

If an interview would advance the prosecution of this application, Applicants respectfully urge the Examiner to contact the undersigned at the telephone number listed below.

The undersigned authorizes the Commissioner to charge fee insufficiency and credit overpayment associated with this communication to Deposit Account No. 22-0261.

Respectfully submitted,

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